

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A temperature-compensated, micromechanical resonator device comprising:

a substrate;

~~a flexural-mode resonator resonant element having first and second ends and wherein the resonant element vibrates in a flexural mode; and~~

~~a temperature-compensating support structure anchored to the substrate to support the resonator resonant element at the first and second ends above the substrate wherein the support structure includes a first support member and a second support member for coupling the first support member to the resonator resonant element, and wherein the first support member and the resonator resonant element have different effective lengths so that the resonator device has enhanced thermal stability.~~

2. (original) The device as claimed in claim 1 further comprising a drive electrode structure formed on the substrate at a position to allow electrostatic excitation of the resonator wherein the resonator and the drive electrode structure define a first gap therebetween.

3. (original) The device as claimed in claim 2 wherein the first gap is a submicron lateral capacitive gap.

4. (previously presented) The device as claimed in claim 2 further comprising a sense electrode structure formed on the substrate at a position to sense output current based on motion of the resonator wherein the resonator and the sense electrode structure define a second gap therebetween.

5. (original) The device as claimed in claim 4 wherein the second gap is a submicron lateral capacitive gap.

6. (original) The device as claimed in claim 1 wherein the resonator is a single resonator beam.

7. (original) The device as claimed in claim 1 wherein the support structure includes an anchor for rigidly anchoring the first end of the resonator to the substrate and a folding truss support structure for substantially decoupling the second end of the resonator from the substrate.

8. (original) The device as claimed in claim 1 wherein the resonator is a lateral resonator and wherein the support structure includes a pair of stress generating support members dimensioned relative to the resonator so that the resonator has enhanced thermal stability.

9. (original) The device as claimed in claim 1 wherein the resonator is a polysilicon resonator.

10. (original) The device as claimed in claim 9 wherein the resonator is a polysilicon resonator beam.

11. (original) The device as claimed in claim 4 wherein the electrode structures are metal.

12. (original) The device as claimed in claim 11 wherein the electrode structures include plated metal electrodes.

13. (original) The device as claimed in claim 1 wherein the substrate is a semiconductor substrate.

14. (original) The device as claimed in claim 14 wherein the semiconductor substrate is a silicon substrate.

15. (original) The device as claimed in claim 1 wherein the support structure does not substantially vibrate during vibration of the resonator.

16. (original) The device as claimed in claim 1 wherein energy losses to the substrate are substantially reduced to allow higher resonator device *Q*.

17. (original) The device as claimed in claim 8 wherein the support members are rigid against lateral motions.

18. (original) The device as claimed in claim 7 wherein the anchor is an off-axis anchor.

19. (original) The device as claimed in claim 1 wherein the device is a temperature sensor.

20. (currently amended) A micromechanical resonator device having a frequency versus temperature curve, the device comprising:

a substrate;

a flexural-mode resonator resonant element having first and second ends and wherein the resonant element vibrates in a flexural mode; and

a temperature-compensating support structure anchored to the substrate to support the resonator resonant element at the first and second ends above the substrate wherein the support structure includes a first support member and a second support member for coupling the first support member to the resonator resonant element, and wherein the first support member and the resonator resonant element have different effective lengths so that the frequency versus temperature curve is specifically tailored.

21. (original) The device as claimed in claim 20 wherein the frequency versus temperature curve is designed to increase temperature dependance of the resonator.

22. (original) The device as claimed in claim 20 wherein the frequency versus temperature curve is designed to have peaks and valleys in predefined locations.

23. (currently amended) A micromechanical resonator device comprising:
a substrate;
~~a flexural-mode resonator resonant element having first and second ends and~~
wherein the resonant element vibrates in a flexural mode; and
a temperature-compensating support structure anchored to the substrate to support the ~~resonator resonant element~~ at the first and second ends above the substrate wherein the support structure includes a first support member and a second support member for coupling the first support member to the ~~resonator resonant element~~, and wherein the first support member and the ~~resonator resonant element~~ have different effective lengths so that the device has a substantially zero temperature coefficient temperature at which the device may be biased.

24. (previously presented) The device as claimed in claim 1 wherein the first and second support members of the support structure are wider than the resonator such that the support structure is non-vibratory during operation of the device.

25. (new) The device as claimed in claim 1, wherein the first support member does not vibrate during resonant vibration of the resonant element.

26. (new) The device as claimed in claim 25, wherein the second support member does not vibrate during resonant vibration of the resonant element.